

***Work Order ID 69839**

Friday, May 20, 2011 8:10:41 AM



Page 1

Item ID: D6010-115

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Material

Start Date: 5/20/2011 Start Qty: 20.00



Cust Item ID:

Required Date: 7/12/2012 Req'd Qty: 20.00



Customer:

Reference:

Approvals: Process Plan: CL Date: 11/05/20 Tooling:

Date:

Run Start



QC: Date: SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D6010

Rev A

100

0.00



PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O: 14138 ☐ a) Order as per Dwg D6010 ☐ b) Material: 2.250
x 0.320 wall 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11)
seamless aluminum tube ☐ c) Minimum ultimate tensile strength = 77 ksi ☐ d)
Minimum tensile yield strength = 66 ksi

CL 11/05/20 20

110

0.00



Receive & Inspect for Damage & Mat'l Certs

Packaging

Memo

0.00

Packaging

Ensure material certification is attached

CL 11/05/20 20
18
QC

120

0.00



QC6- Inspect dimensions to drawing

QC

Memo

0.00

Quality Control

Ensure Material certification comply to Dwg

5/10/2012

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 69839

Friday, May 20, 2011 8:10:41 AM



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Item ID:	D6010-115	Accept		Setup	Start	
Revision ID:					Stop	
Item Name:	Crosstube Material					
Start Date:	5/20/2011	Start Qty:	20.00		Cust Item ID:	
Required Date:	7/12/2012	Req'd Qty:	20.00		Customer:	
Reference:						

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 	Chemical Conversion Coat per QSI005 4.1	0.00							
HandFinish Hand Finishing	Memo	0.00							
140 	Identify as per dwg & Stock Location: 46	0.00							
Packaging Packaging	Memo	0.00							
150 	QC21- Final Inspection - Work Order Release	0.00							
QC Quality Control	Memo	0.00							

12-7-11

12/7/24

MLJ 12/07/23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Friday, May 20, 2011 8:10:38 AM

Page 1

Work Order ID: 69839



Parent Item: D6010-115



Parent Item Name: Crosstube Material



Start Date: 5/20/2011

Required Date: 7/12/2012

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP Rev:A 01.08.17 New Issue SM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6010-115P  Crosstube Material		Purchased	No			110	Each	0.0000	1 	20		6/4/11 (20)	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

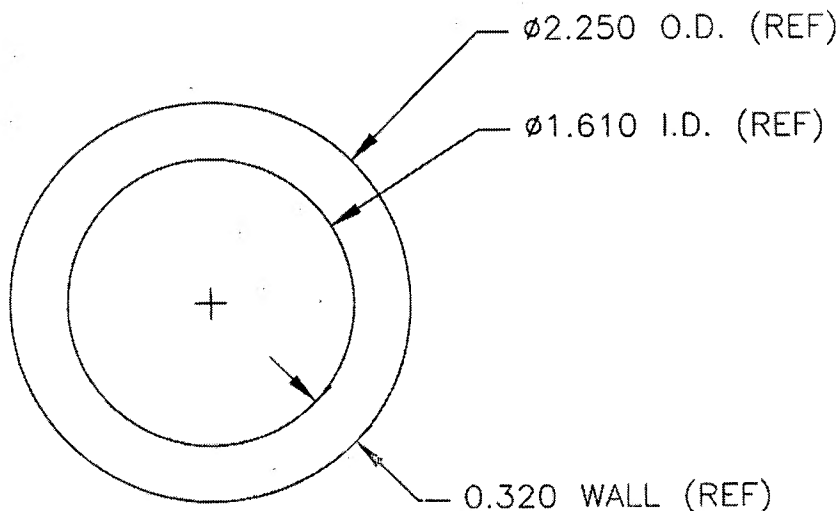
NOTE: Date & initial all entries



DESIGN #	DRAWN BY RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D6010	REV. A SHEET 1 OF 1
DATE 01.08.16		TITLE CROSSTUBE MATERIAL	SCALE 1:1
A	01.08.16	NEW ISSUE	

SPECIFICATION CONTROL DRAWING

RELEASED
01.08.17



CL11/05/20

W/O: 69839

NOTES

- 1) D6010-XXX CROSSTUBE
LENGTH

WHERE XXX IS LENGTH IN INCHES
EG. 115" LONG TUBE: D6010-115

- 2) MATERIAL: 2.250 OD x 0.320 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:
O.D.: ± 0.006 MEAN (± 0.012 INCLUDING OVALITY)
WALL: ± 0.015 MEAN (± 0.032 INCLUDING ECCENTRICITY)
LENGTH: XXX $+0.125/-0.000$
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

ALUnna ref. no.	42438/11
Customer PO	PO. 14138
Date:	03.30.12

Boxmarking:

Dart Aerospace PO, 14138
D6010-115
Made in Germany Dest.: Hawkesbury ONT, Canada

free from live plant pests

S:\VERSAND\USA_Packliste\42438_11

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde:

Client:

Dart Aerospace Ltd.

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Produkt:

Product / Produit:

Rohre nahtlos gepresst
Tubes seamless extruded

Spezifikation:

Specification:

AMS - QQ - A - 200/11; Spezifikation Dart Aerospace D6010

Werkstoff:

Alloy/Alliage:

7075

Abmessung

Size / Dimension

2,250 INCH x 1,610 INCH x 0,320 INCH x 115,000 INCH
D6010-115

Kennzeichnung

Marking/Marquage:

Cert.No. 437/12 - ALUnna - 7075 - T6511 - Cast No. 7490 - AMS - QQ - A - 200/11 - 2.250" OD x 0.320" Wall - Heat
Lot No. 1301475 - ALUnna Order Conf.No. 42438/11-1 - P.O. 14138

Zeugnisnummer:

437/12

Cert No.: / No. du certificat:

PO14138

Bestellnummer:

Order No. / No. de commande

Auftrag:

42438/11

Our Reference/Notre Reference:

Zustand:

Temper/Etat

T 6511

Lieferung

Delivered Material / Matériel délivré:

pcs.

18

lbs

410

Country of Manufacture: Germany

Products are in accordance with applicable RoHS

Elemente ohne Grenzwerte:

einzelnen max. 0,05 %, insgesamt 0,15 %

1. Chemische Analyse

Chemical Analysis / analyse chimique

Charge/ min.
Cast No. max.

Chemical Analysis / analyse chimique													einzel max. 0,05 %, insgesamt 0,15 %	
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni		
		1,2		2,1	0,18	5,1								
0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20							
0,096	0,201	1,513	0,069	2,550	0,218	5,985	0,038	0,004	0,0415	0,0001	0,0017	0,0002		
country of melt manufacturer: German														

Hydrogen content: 0,09

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat Lot No.
min. max.	77,0	66,0	7,0			
1	86,130	77,865	8,0			1301475

RMS outside 25 - max. 10,5 µ"

Ergebnis der Prüfungen:

Test results:

Resultats:

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order
Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

mergardtri

30.03.2012



Certified acc. DIN EN ISO 9001:2008 and DIN EN 9100:2003
valid until 2013-11-10

Cert.- Req. No.: 001959 QM08; 001959 ASH

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany



ALUnna

Abnahmebeauftragter

EXTRUSION INSPECTION SHEET

		SIDE A	SIDE B					ULTRA SONIC MEASUREMENTS				
TUBE #	TOTAL LENGTH	DIA two readings	DIA two readings	INSIDE DIA	wall thickness measured w/vern	Strightness at 12"	Rockwell Reading	LOCATION on tube	R1	R2	R3	R4
DWG	115.00"	2.250"	2.250"	1.610"	0.320"	0.010"	N/A	Middle	N/A			
1	115.00"	2.247"/2.249"	2.245"/2.248"	1.607"	0.314"/0.3230"	0.009"	N/A	Middle	0.324"	0.330"	0.333"	0.325"
2	115.00"	2.246"/2.250"	2.247"/2.249"	1.603"	0.317"/0.331"	0.010"	N/A	Middle	0.322"	0.321"	0.333"	0.335"
3	115.00"	2.252"/2.253"	2.249"/2.253"	1.603"	0.317"/0.334"	0.013"	N/A	Middle	0.320"	0.325"	0.338"	0.319"
4	115.00"	2.253"/2.248"	2.251"/2.250"	1.604"	0.319"/0.324"	0.010"	N/A	Middle	0.325"	0.333"	0.333"	0.326"
5	115.00"	2.247"/2.249"	2.251"/2.253"	1.604"	0.317"/0.324"	0.026"	N/A	Middle	0.329"	0.325"	0.329"	0.335"
6	115.00"	2.246"/2.251"	2.250"/2.249"	1.601"	0.319"/0.323"	0.005"	N/A	Middle	0.327"	0.335"	0.330"	0.324"
7	115.00"	2.246"/2.249"	2.251"/2.254"	1.603"	0.310"/0.337"	0.017"	N/A	Middle	0.326"	0.323"	0.331"	0.335"
8	115.00"	2.249"/2.250"	2.251"/2.253"	1.603"	0.319"/0.327"	0.012"	N/A	Middle	0.327"	0.326"	0.330"	0.321"
9	115.00"	2.250"/2.251"	2.247"/2.251"	1.602"	0.317"/0.326"	0.005"	N/A	Middle	0.330"	0.325"	0.328"	0.334"
10							N/A	Middle				
11							N/A	Middle				
12							N/A	Middle				
13							N/A	Middle				
14							N/A	Middle				
15							N/A	Middle				
PART # D6010-115		P/O# 14138			BATCH # B69839			Notes:				